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Reprinted from
THE ARCHIVES OF PEDIATRICS,
February, 1893.

NEW YORK:
M. J. ROONEY, PRINTER AND PUBLISHER,
114-120 W. 30th St.

presented by the author.

ON DILATATION OF THE COLON IN YOUNG CHILDREN.*

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A MODERATE grade of dilatation of the colon, by no means an uncommon condition, occurs at various periods of life, most commonly associated with chronic constipation. There are, in addition, instances on record of unusually great dilatation, either of the entire large bowel or of the sigmoid flexure; thus in the index catalogue there are twelve references to cases of dilatation and hypertrophy of the colon. The most extraordinary instance on record is that recorded recently by Dr. Formad:† the case of the Museum *freak* known as the *balloon-man* or the *wind-bag*. This individual, aged at the time of his death twenty-three years, had been of a constipated habit, and had had a distended abdomen ever since his earliest infancy. Post-mortem there was found to be no obstruction; the colon was as large as that of an ox, the circumference ranging from 15 to 30 inches. Its weight with the contents, was about forty-seven pounds. I had an opportunity of seeing this specimen with Dr. Formad shortly after its removal, and it is difficult to imagine how a gut of such enormous size could have been retained within the abdominal cavity.

A remarkably interesting specimen was shown at the Philadelphia Pathological Society in 1886 by Dr. W. E. Hughes.‡ The patient, a boy aged three, was troubled in early infancy with obstinate constipation, which became more marked as he grew older, and the abdomen gradually enlarged. The stools, however, which came away after the use of laxatives, were normal, not hard. The rectal injections seemed rather to aggravate the condition. In his second year, after an attack of entero-colitis, the constipation became more obstinate, and at one time he went nineteen days without a passage. In these periods he was restless and uneasy, but there was never any pain or vomiting. Enemata seemed to do but little good, and

* Read before the Johns Hopkins Hospital Medical Society, December 19, 1892.

† *University Medical Magazine*, 1892.

‡ Transactions of Philadelphia Pathological Society, vol. xiii.

strong purgatives alone seemed to be effectual. When first seen by Dr. Hughes, the belly was enormously enlarged, everywhere tympanitic, and showed through the thin walls greatly distended coils with waves of peristalsis. The child died in an attack of acute colitis. The autopsy showed nothing remarkable except the colon, which was enormously dilated and held fourteen pints of water. The greatest dilatation was in the neighborhood of the sigmoid flexure, where it was four inches in diameter. The muscular walls were enormously hypertrophied and increased in thickness towards the anus. There were a few shallow, rounded ulcers, and about the middle of the transverse colon a large area of recent inflammation. In this case the excessive dilatation was definitely associated with constipation, and Dr. Hughes was of the opinion that the continued use of large enemata had aggravated the tendency to distention of the intestine.

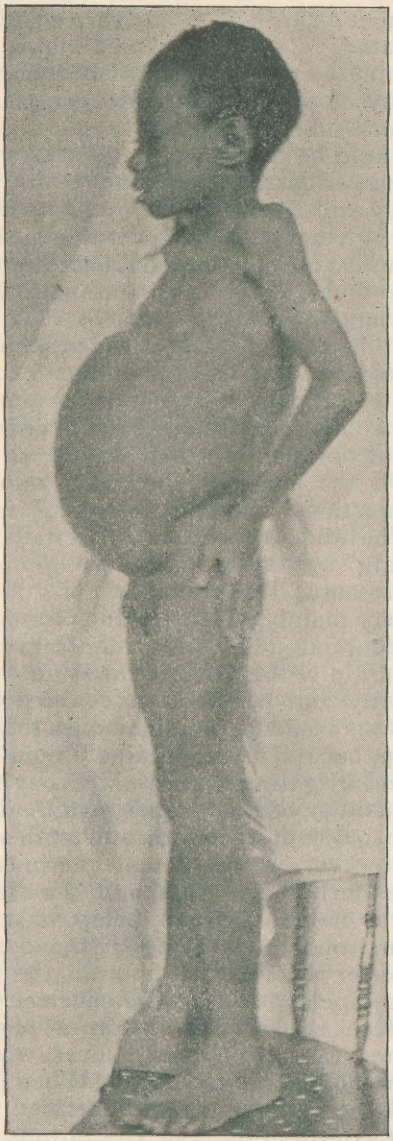
One can readily understand dilatation and hypertrophy of the colon being gradually induced in consequence of protracted constipation, but there are instances in which apparently from the earliest period of life the large bowel is inert and in which there would appear to be a tendency to dilatation without any protracted impaction of fæces. The following cases are of interest in this connection :

CASE I.—John T. W., colored, aged ten, was admitted to Ward F of the Johns Hopkins Hospital Feb. 17, 1892, complaining of a swollen and painful abdomen. The boy was brought to the hospital by his relatives, who live outside the city, and as they were not seen by the attending physician, no history could be obtained. It is stated, however, that he had, for many years, trouble with his bowels, and had always had a large, prominent abdomen.

Present condition: Sparely built, somewhat emaciated lad, weighing only forty-seven-and-a-half pounds ; lips and mucous membranes of good color. The ends of the bones are not enlarged, and he is not bow-legged. He is able to walk about, but the abdomen looks distended and large. There is no fever ; the pulse is quiet. When stripped the contrast between the distended paunch and the emaciated thin limbs is very striking. (See Fig. from photograph.)

The thorax is symmetrical, and the lower zone is much distended by the enlarged abdomen. The ribs are a little beaded. The back shows several reddish, superficial

scars, where the child has been beaten. The heart impulse cannot be distinctly localized, but is apparently under the fifth rib and a little inside the nipple line. The sounds are clear; the second a little accentuated. The examination of the lungs is negative.



The abdomen is greatly distended, measuring sixty-three cm. just above the navel. It is uniform; on palpation tense, painless, and no tumor masses can be felt. Percussion gives everywhere a tympanitic note. The spleen is not palpable, and the splenic dulness is masked by the tympany. The edge of the liver cannot be felt, and dulness is obliterated in the middle parasternal and nipple lines.

The urine was normal.

Nothing very definite was determined at first about the nature of the lad's illness. There was certainly neither ascites nor tumor, and the suggestion that it might be tabes mesenterica was negatived. The child was kept in bed and given a good diet. The first and second day in hospital he had an ordinary movement from the bowels, not specially constipated.

On the 22d, he had diarrhœa, six large liquid movements. On the 23d and 24th there was only one movement on each day, and then for three days he was constipated. Repeated examinations showed practically the same condition; enormous abdominal distension without any obvious cause. He complained of no pain, and we very soon let him go about the ward. At intervals he would be constipated, but this was readily relieved by a dose of castor oil, and never during the months of February and March did he go for more than two days without a movement. On several occasions he had, even without castor oil, loose fluid motions. All this time he had no fever, and was up and about the ward, and gained four pounds in weight.

On the night of the 23d, the patient had four loose fluid movements, and complained of abdominal pain. On the morning of the 24th, he vomited several times, and the abdomen seemed more distended, and the contractions of the intestinal coils were very plainly to be seen. On the night of the 24th, he was given several large injections which brought away formed masses of fæces. The abdomen measured in its largest area, seventy-four cm.; was tympanitic throughout; not very tender on pressure. The individual coils during peristalsis stand out very plainly. The outline of the colon could be distinctly seen, extending obliquely from the left lumbar region to the tip of the xiphoid cartilage. The examination externally and per rectum could determine no tumor. No flatus could be obtained with the rectal tube passed high up, but relief was obtained by introducing the tube far up and irrigating the bowel thoroughly, and with this a large quantity of fluid came away. The distention persisted throughout the 25th and 26th and 27th; the vomiting, however, was less, and the injections gave relief. The tenderness was less, and the distention of the abdomen was not so marked, being only sixty-nine-and-one-half cm. on the morning of the 27th. He was very much better the next day, but on the 29th he developed facial erysipelas, and was transferred to the infectious ward. Here the erysipelas ran a regular course, with very moderate and irregular fever, which persisted with intermissions until the 10th. When in the isolating ward the abdomen was not so distended; he had several attacks of constipation, but the bowels were readily moved by laxatives. During this time he had also several attacks in which there was great pain in the abdomen with in-

crease in distention, and at this time the coils of the intestine became very marked. He was in the isolating ward for about ten days, and after his return to Ward F the abdomen was very large, measuring sometimes as much as eighty cm. in circumference, and he had several attacks of pain and vomiting. At no time in these vomiting attacks was the material brought up fæcal in character. They were always relieved by the high enemata, which were given with the hips well elevated, and letting as much run in as possible from a height of six feet.

The increased frequency of these attacks of pain and vomiting made me feel that it would be advisable to have an exploratory operation in order to determine definitely whether there was any cause for the trouble, though it did not seem possible that there could be any obstruction, as the fluids passed so freely from the siphon syringe. Accordingly, he was transferred to the surgical department on April 20th, and Dr. Halsted performed abdominal section. The following is an abstract of the notes from the surgical protocol:

Under ether a long incision was made in the median line, extending from a little below the ensiform cartilage to a little above the pubes. When the incision was completed an enormously enlarged colon rolled out upon the abdominal walls. The entire gut was enlarged. It was the greatest at the sigmoid flexure, where the measurement was exactly forty-five cm. in circumference. The cæcum was about half this size, and the bowel progressively increased in diameter in the ascending, transverse and descending portions. The sigmoid flexure was twisted on itself, but not so as to cause any obstruction. During the operation the rectum was thoroughly examined by Dr. Osler, whose finger could be readily felt by the hand of the operator, and no structure could be determined anywhere. A moderate sized fæcal mass existed in the rectum, not impacted, and after removalof this the tube was passed, but the distended colon did not empty itself through this. The small intestines were normal in size and appearance, and nearly empty. The intestines were wrapped in warm gauze, which was also packed around the incision.

Dr. Halsted then proceeded to make an artificial anus, opening the bowel at the most prominent part of the sigmoid flexure. A very large quantity of yellowish fluid fæcal matter escaped with gas. The muscular coats of

the bowel were very much thickened ; the mucous membrane seemed normal.

The boy did remarkably well and was sitting up in a chair on April 29th. His appetite and general condition improved ; he gained in weight, and he had no further abdominal symptoms whatever. There was no tympanites, and he passed the fæces through the artificial anus.

Unfortunately, we have not been able to obtain any account of the first years of this child's life, further than that he had always had a prominent abdomen, and had trouble with the bowels. It may be, of course, that the enormous distention present when he came under our observation was only the sequence of protracted constipation, but as mentioned in the history, there was not at any time during his stay in the hospital impaction of fæces, and the attacks of distention, colic and vomiting were, as a rule, readily relieved by simple injections, and at no time were hard, scybalous masses seen. The grade of dilatation in this case was extreme, a circumference of forty-five cm. (about eighteen inches), which equalled the circumference of the ascending colon in Dr. Formad's case. I must say that the attacks of vomiting, with increase in the distention, great tension of the abdominal walls, and visible coils in active peristalsis, excited the suspicion that possibly there was a stricture of some sort in the sigmoid flexure. It was for the purpose of exploring the large intestine that the laparotomy was performed. To have made an artificial anus in the case seems a serious measure, but the child's condition had become very distressing, and the rapid improvement which followed the operation is itself the best justification. Dr. Platt, under whose care the boy is at present, informs me that the boy's general condition is good, and that it is his intention to try to reëstablish the continuity of the bowel.

CASE II.—R. A., aged seven months, admitted June 12, 1891, with constipation. Father and mother are healthy and well. The first child, born November 20, 1889, natural labor. At about the seventh month the child had stomach trouble, continued diarrhœa, and died suddenly.

The present is the third child. When born was a healthy, large child. It was noticed from the outset that the child's napkins were not soiled. The abdomen became swollen and very tense, but the doctor made an examination, passed a catheter, and the black, tar-like fæces were brought away. From the time of its birth the child has had only five or six natural evacuations. A careful examination of the rectum was made shortly after the child's birth, but no stricture was found, and large sized dilators were passed easily. Sometimes the fæcal matter was hard and was with difficulty removed. In spite of this the child throve and seemed perfectly well, was well nourished and did not cry or was not specially distressed so long as the bowels were thoroughly relieved every day by the injection. If not relieved the abdomen would swell and the child would vomit very much, at times large quantities of material which were sometimes bile-stained. Until two weeks ago the child seemed healthy and looked natural. At this time he began to be feverish, the gums were swollen, he cried a great deal, and had much vomiting when the bowels were not relieved, and the mother is sure there was a great deal of pain when the abdomen was distended. He has lost in weight and has not nursed so well.

Present condition: Bright looking child, moderately well nourished, rather small for its age; tongue is clean; no teeth as yet cut. The abdomen is greatly distended and very tense. The costal margins and the ensiform cartilage are strongly everted. The outlines of the coils of the intestines are distinct, particularly one very large coil passing transversely between the navel and the ensiform cartilage. There are no vermicular movements visible, but the mother states that they are often to be seen very plainly. On palpation the tension is considerable; there is no pain except on deep pressure; no fæcal masses; no tumor to be felt, but there is much gurgling of flatus. The liver dulness is almost obliterated; the spleen is not palpable. The examination of the rectum by the finger is negative. It did not seem to me that the sphincter was especially tight, but Dr. Halsted, who subsequently examined the child, thought that it was a little more resistant and tighter than normal. A catheter is passed without any difficulty, and when it reaches a distance of eight inches much gas escapes, and if there has been a previous injection of water, fluid fæces. The usual routine the mother follows to relieve the bowels is to

inject a few ounces of water an hour or two before she passes the catheter, which she then inserts to a distance of about six or seven inches, and gas and fæces come away. The abdomen becomes flat and soft at once after the escape of the flatus and fæces. The contrast between the tense, enormously distended abdomen in the morning after having been for twenty-four hours without an evacuation, and immediately after the use of the catheter is very remarkable.

The patient was only under observation for about two weeks, and presented no change during this time. The distention did not seem to be due to obstruction, nor did it appear to be influenced at all by the use of free injections. The mother was advised to relieve the child's bowels with the catheter several times in the day, so as not to allow the flatus and fæces to distend the colon.

The mother wrote seven or eight months after she left the hospital saying that the child's condition remained practically the same.

Here we may possibly have an illustration of the early condition which leads ultimately to the enormous dilatation and hypertrophy met with in the last case and in the one reported by Formad. From birth there seems to have been an inability in the large bowel to empty itself, and this certainly was not, I think, associated with any degree of tightness of the sphincter, through which the index finger passed without any difficulty.

The important matter in the treatment of these cases would be the careful regulation of the diet, and in very young children relieving the distention by irrigation several times in the day so as to prevent the accumulation of liquids.